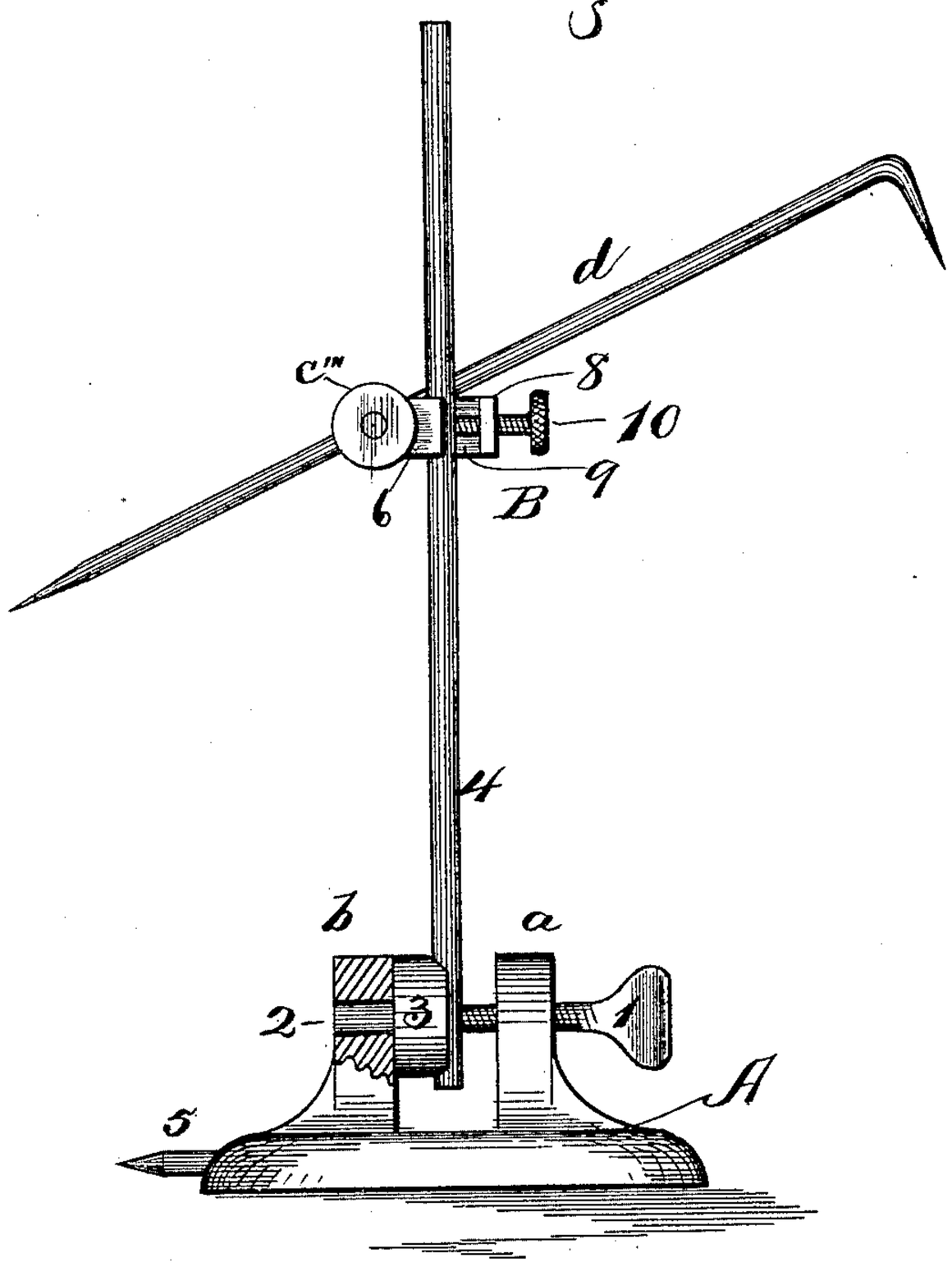
(No Model.) 2 Sheets—Sheet 1.

J. CARR.

SURFACE GAGE.

No. 467,732. Patented Jan. 26, 1892.

Fig. 1.



Witnesses
H. A. Carhart.
C. B. Kinne

James Carr Inventor

By his Attorneys
Dewitt & Denison

(No Model.) 2 Sheets—Sheet 2.

J. CARR.

SURFACE GAGE.

No. 467,732. Patented Jan. 26, 1892.

Fig. 2.

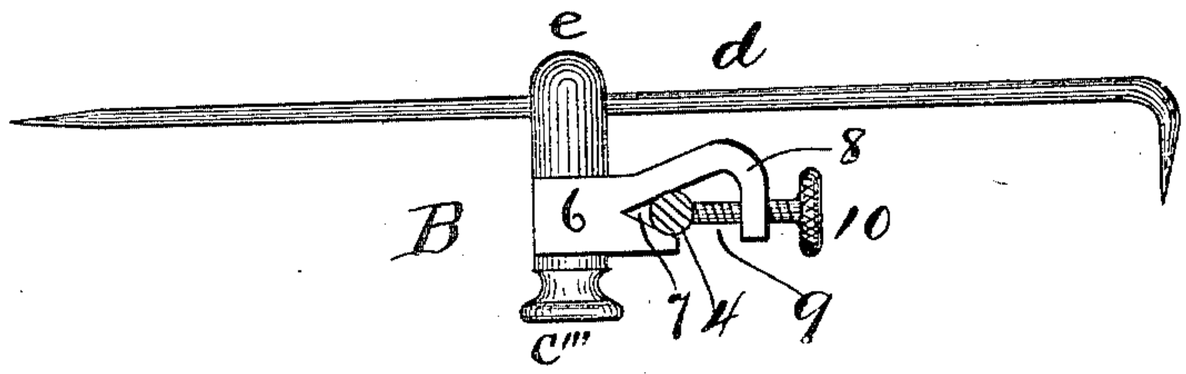


Fig. 3.

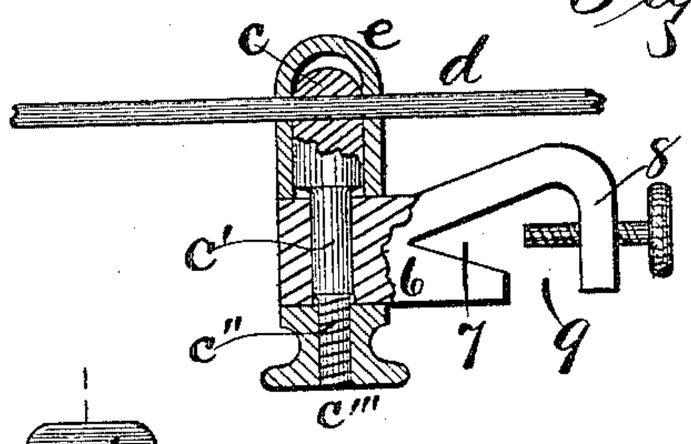


Fig. 6.

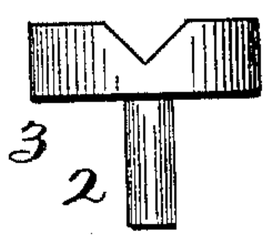


Fig. 4.

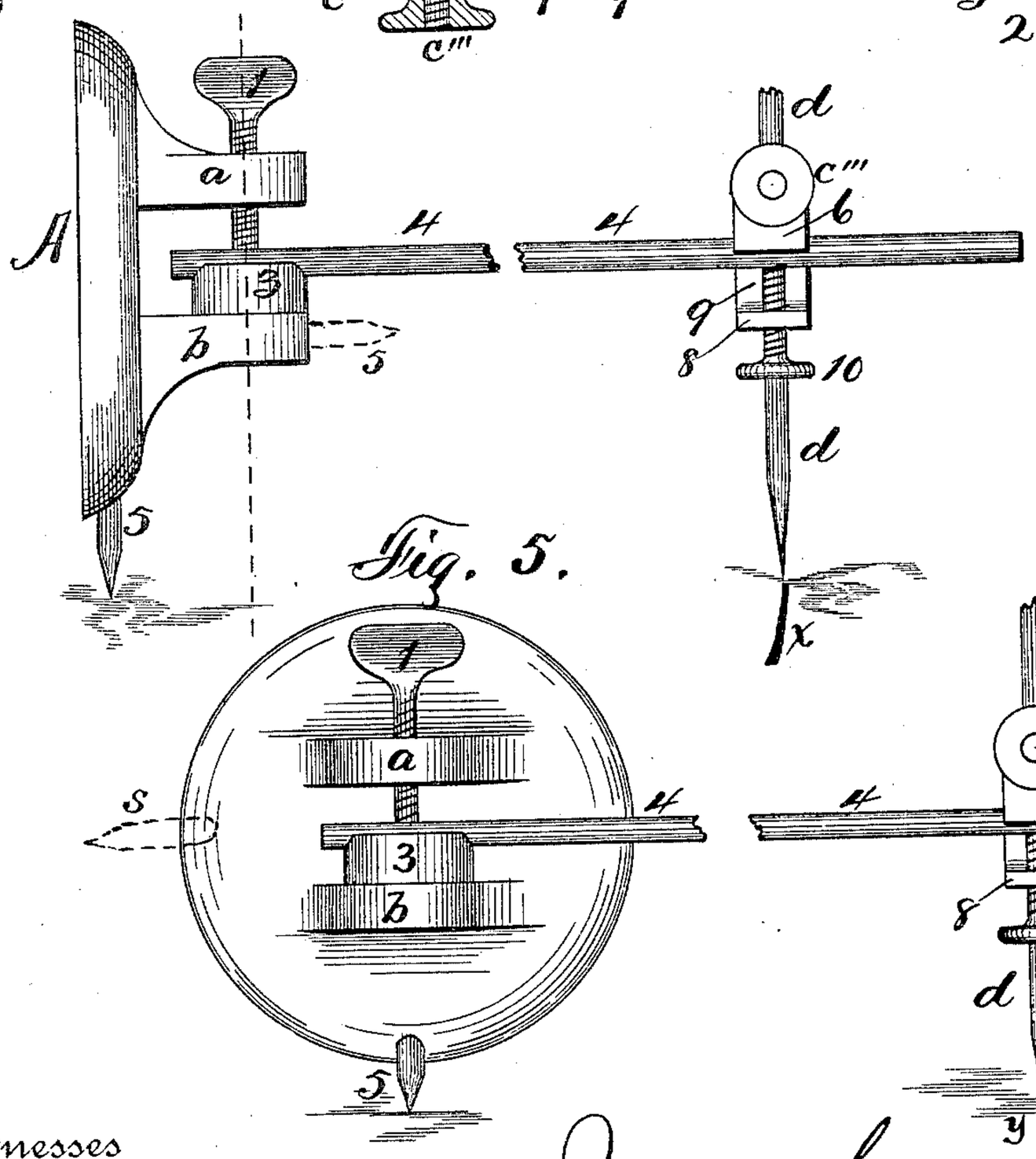


Fig. 5.

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UNITED STATES PATENT OFFICE.

JAMES CARR, OF SYRACUSE, NEW YORK.

SURFACE-GAGE.

SPECIFICATION forming part of Letters Patent No. 467,732, dated January 26, 1892.

Application filed April 3, 1891. Serial No. 387,487. (No model.)

To all whom it may concern:

Be it known that I, JAMES CARR, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Surface-Gages, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to surface-gages, and particularly to those which comprise a gage and beam compass combined.

My object is to produce a combined gage and compass or scriber in which the needle carried can be detached from the standard without sliding it along to the end thereof, in which this carrier can be applied to standards of varying sizes, in which the standard is mounted in a holder pivoted in the supporting-base and adapted to receive different sizes and can be swung over either way to any angle desired, and in which the base is provided with a point which constitutes the center leg of a beam-compass, while the needle or a pen or pencil placed in the carrier constitutes the outer or marking leg, it being also adjustable to vary the distance of the needle from the center point (or leg) to a certain extent by the swing of the base upon this leg as a pivot, and also by the swing of the beam adapted to scribe surfaces above or below the horizontal plane of the support of the center leg.

My invention consists in the several novel features of construction and operation hereinafter described, and which are specifically set forth in the claims hereunto annexed. It is constructed as follows:

Figure 1 is a front elevation of the instrument complete as a surface-gage, showing also the pivot of the standard-holder. Fig. 2 is a top plan of the needle and needle-carrier, the standard being cut off even with the top of said carrier. Fig. 3 is a top plan of the same without the standard, parts being broken out to show the needle mechanism. Fig. 4 is a side elevation of the instrument in use as a beam-compass. Fig. 5 is a like view of the same with the base standing in a different vertical plane from Fig. 4. Fig. 6 is an elevation of the standard-holder detached.

A is the base, provided on its upper face with the parallel vertical ears *a b*. In the ear *a* I mount the set-screw 1. In the ear *b* I pivot the stem 2 of the standard-holder 3. This holder has a V-notch on a diametrical line, which receives the standard 4 and is secured therein by the set-screw. Upon the base or upon one of the ears *a b*, or in both positions, I mount a pivoted stud 5.

B is the needle-carrier comprising a body 6, having a V-shaped jaw 7, to one side of which the arm 8 is secured, leaving the space 9 between it and the other side of the jaw, through which the standard can pass into the jaw or be removed therefrom, and a set-screw 10 through the arm. A bolt is inserted through the body having a head *c*, a shank *c'*, and a threaded outer end *c''* to receive the thumb-screw *c'''*, and the head is perforated transversely to receive the needle *d*. A tubular cap *e* fits over the head, and the needle also passes through perforations therein, and when the thumb-screw is tightened the bolt-head is drawn in and the needle is gripped by the bolt-head and cap.

It will be seen that I can shift the standard to any angle desired by turning its holder upon its pivot, thus greatly increasing the range of the instrument, and that I can also adjust the needle longitudinally and also shift the needle to any angle by loosening the thumb-screw and turning it and the bolt-head and cap and retightening the thumb-screw. When I wish to scribe a circle or curve, I place the point 5 upon the center and adjust the needle-carrier to the radius, as shown in Fig. 4. In case I desire to scribe parallel curves, I twist the base, turning the standard-holder, and thus drawing the needle-point inward toward the point 5, as shown in Fig. 5 by the lines *x y*. In case I wish to scribe a curve on a surface above or below the plane of the surface upon which the center of the curve must be, I use the point *s* on the base, which brings the ears *a b* vertical, so that I can then raise or lower the standard and needle-carrier, as is necessary, also shifting the needle longitudinally, if desired. In case the point 5 is located upon one of the ears *a b*, I can also use the instrument as a beam-compass by turning the base and bringing this point upon the center.

It will be seen that the range of the instrument as a beam-compass to vary the radius

as in drawing parallel curves, as before described, without moving the needle-carrier upon the standard, is equal to the distance between the dotted line in Fig. 4 and a vertical line parallel thereto through the point of the stud 5. It will also be seen that whichever point is used the radius can be changed more or less by twisting the base.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A base provided with vertical parallel ears, a set-screw through one ear, and a standard-holder pivoted in the other ear, provided with a V-shaped diametrical groove, in combination with a standard detachably secured in the notch in said holder, and a needle and needle-carrier mounted upon said standard.

2. In a surface-gage, a needle-carrier comprising a body having a V-notch, an arm in front of the notch, a set-screw through the arm, a bolt through the body, a perforated bolt-head, a perforated cap over the bolt-head and a thumb-screw upon the bolt, and a needle inserted through the bolt-head and cap, in combination, as set forth.

3. The combination, with the base, the standard secured in the base, and a needle and needle-carrier mounted upon the standard, of a pointed stud upon the base.

In witness whereof I have hereunto set my hand this 24th day of March, 1891.

JAMES CARR.

In presence of—
H. P. DENISON,
C. W. SMITH.